

Evidence in support of the International Association of Diabetes in Pregnancy study groups' criteria for diagnosing gestational diabetes mellitus worldwide in 2019



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Gestational diabetes mellitus, the most frequent medical complication of pregnancy, affects 5–6% of women in the United States with the use of the currently predominant Carpenter-Coustan criteria, which still represent the preferred approach of the American College of Obstetricians and Gynecologists. Alternative criteria proposed by the International Association of Diabetes in Pregnancy Study Groups would likely increase gestational diabetes mellitus prevalence to 15–20%, because of both a 1-step testing policy and the requirement for only 1 elevated glucose value for diagnosis. Increasing gestational diabetes mellitus prevalence relates to older maternal age and the increasing prevalence of overweight and obesity. This increased gestational diabetes mellitus prevalence is consistent with 29.3% prevalence of prediabetes and 4.5% prevalence of known diabetes outside pregnancy in US adults from 20–44 years of age. Gestational diabetes mellitus according to the International Association of Diabetes in Pregnancy Study Groups criteria is associated with almost twice the risk of large-for-gestational-age babies, increased fetal adiposity, neonatal hyperinsulinemia and preeclampsia, and a 50% higher risk of preterm delivery and shoulder dystocia. The recent publication of the Hyperglycemia and Adverse Pregnancy Outcome Follow Up Study provides further evidence regarding the influence of gestational diabetes mellitus on long-term maternal and infant health. This study clearly demonstrates that hyperglycemia in pregnancy, untreated and identified post hoc by the International Association of Diabetes in Pregnancy Study Groups criteria, carries a 41.5% risk of maternal prediabetes (odds ratio, 3.72; 95% confidence interval, 3.09–4.47) and 10.7% risk of type 2 diabetes (odds ratio, 7.63; 95% confidence interval, 5.33–10.95) after 11.4 years of follow up. Gestational diabetes mellitus was also associated with higher rates of childhood overweight and obesity (prevalence 39.3% with maternal gestational diabetes mellitus; odds ratio, 1.5; 95% confidence interval, 1.56–2.44). This article places these findings in the context of other recent studies that have demonstrated that interventions that include lifestyle measures and/or metformin offer a >50% reduction in the risk of women with gestational diabetes mellitus experiencing the development of overt diabetes mellitus after their index gestational diabetes mellitus pregnancy. Although prevention of obesity and prediabetes in offspring by pregnancy treatment of gestational diabetes mellitus has not been demonstrated to date, we argue that the immediate pregnancy benefits and opportunities for long-term improvements in maternal health justify a reevaluation of the current ambivalent approach taken by the American College of Obstetricians and Gynecologists to gestational diabetes mellitus diagnosis, which currently allow for a choice of alternative criteria. The Carpenter–Coustan or National Diabetes Data Group criteria, listed as preferred criteria by American College of Obstetricians and Gynecologists, markedly limit the frequency of gestational diabetes mellitus in comparison with the International Association of Diabetes in Pregnancy Study Groups criteria and limit the opportunity for immediate and long-term follow up and treatment. We consider that new information from the Hyperglycemia and Pregnancy Outcome Follow Up Study and other recent publications on long-term maternal and offspring risk provides compelling arguments for a more comprehensive approach to the promotion of maternal and infant health through all the life cycle.

Key words: diagnostic criteria, FIGO, follow up, glucose, HAPO, hyperglycemia in pregnancy, pregnancy, testing, type 2 diabetes mellitus

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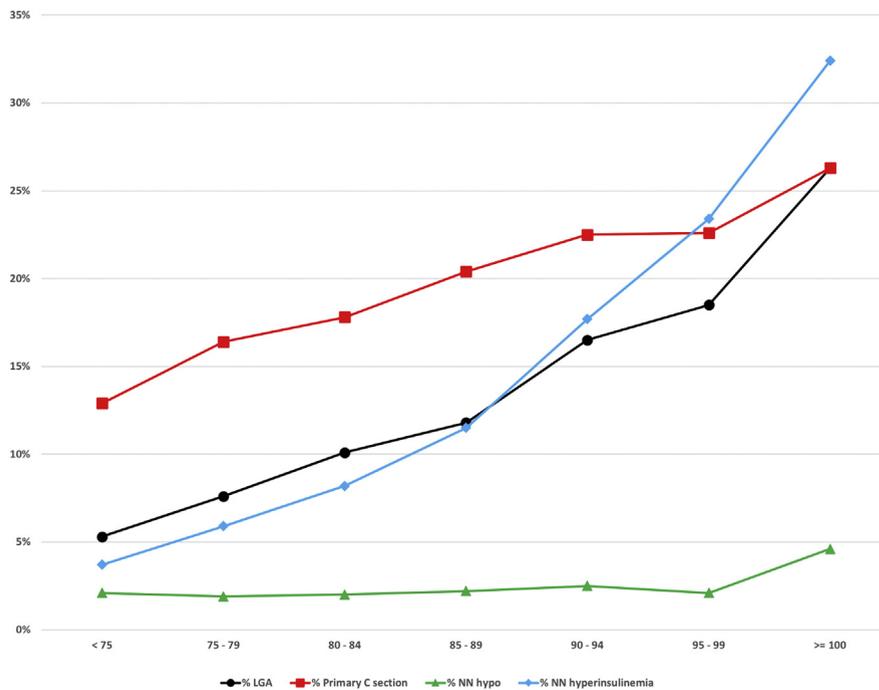
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Data from a blinded multinational cohort of 23,316 women and their singleton offspring the Hyperglycemia and Adverse Pregnancy Outcome (HAPO) study¹ provided clear evidence of the independent and continuous linear relationship between nondiabetic hyperglycemia and a range of pregnancy complications and neonatal outcomes. The primary

FIGURE

Frequency of primary outcomes in the Hyperglycemia and Adverse Pregnancy Outcome (HAPO) Study



Frequency of primary outcomes classified by fasting venous plasma glucose categories (ranges in milligrams per deciliters). *Black circles* represent large for gestational age (birthweight >90th percentile); *red squares* represent the primary primary cesarean section delivery; *green triangles* represent clinical neonatal hypoglycemia; *blue diamonds* represent neonatal hyperinsulinemia (cord C peptide >90th percentile).

LGA, large for gestational age; NN, neonatal.

Hod. Gestational diabetes mellitus in 2019. *Am J Obstet Gynecol* 2019.

outcomes were large-for-gestational-age (LGA) infants (birthweight >90th percentile), primary cesarean delivery, clinical neonatal hypoglycemia (symptoms or treatment with a glucose infusion or a local laboratory report of a glucose value of ≤ 30.6 mg/dL in the first 24 hours after birth or ≤ 45.0 mg/dL after the first 24 hours) and fetal hyperinsulinemia (cord C peptide >90th percentile for the HAPO cohort). The major secondary outcomes included preterm birth, shoulder dystocia/birth injury, admission to newborn intensive care unit, hyperbilirubinemia, and preeclampsia. The [Figure](#) provides a graphic depiction of the risk of the HAPO study primary outcomes across increasing categories of fasting glucose in the HAPO study. Similar trends are seen

with 1-hour or 2-hour oral glucose tolerance test (OGTT) results.¹

New diagnostic criteria for gestational diabetes mellitus

The results of the HAPO study led to an international consensus process that was sponsored by the International Association of Diabetes in Pregnancy Study Groups (IADPSG) to redefine gestational diabetes (GDM), which led to recommendations for a 1-step approach to diagnosis and classification of hyperglycemia in pregnancy according to thresholds that corresponded to adjusted odds ratios (ORs) of 1.75 compared with the mean for 3 neonatal outcomes: LGA, excess adiposity (percentage of body fat >90th percentile), and neonatal hyperinsulinemia.² This contrasts with the

traditional US definition of GDM based on the risk of maternal progression to diabetes mellitus in the postpartum period,³ with the use of data that were derived from a small cohort of 752 women who were recruited by O'Sullivan⁴ in Boston in the late 1950s, which were later reanalyzed to provide the basis for current "2-step" testing. Strikingly, O'Sullivan reported that "16.2% were 20% or more above their ideal body weight," compared with the recent prevalence of obesity in US women aged 20–39 years of 37%.⁵

The IADPSG approach has been endorsed by the World Health Organization^{6,7} and the International Federation of Gynecology and Obstetrics (FIGO)⁸ but has not been widely accepted in North America, and varying opinions have been expressed in the pages of this Journal.^{9,10} In the United States, the American College of Obstetricians and Gynecologists (ACOG)¹¹ has continued to favor the traditional 2-step approach. In Canada, the Canadian Diabetes Association¹² has favored higher diagnostic thresholds, primarily based on concerns regarding increased frequency of GDM diagnosis with the IADPSG approach. [Table 1](#) summarizes both immediate and long-term outcomes in the HAPO study, according to the presence or absence of GDM by IADPSG criteria.

Ten- to 14-year follow up of infants and mothers enrolled in the HAPO study

The recent publication of the HAPO Follow up Study (FUS;¹³ [Table 1](#)) provides a long-term view of the maternal and offspring consequences of pregnancy hyperglycemia, thus offering another opportunity to review issues relating to GDM that is informed by 10–14 years of follow up of both mothers and infants from the original study and to place these in the context of other research published over the last decade. HAPO FUS included 4747 mothers and 4834 infants from the original study, drawn from 10 of the 15 initial HAPO Field Centers. Median time after the birth at follow up was 11.4 years.

Overall, 52.2% of mothers with GDM, based on IADPSG criteria, who were blinded and untreated during their index pregnancy experienced prediabetes (composite of impaired glucose tolerance and impaired fasting glucose) or type 2 diabetes mellitus at follow up as compared with 20.1% of those without IADPSG GDM. The fully adjusted OR (including adjustment for maternal body mass index [BMI] at follow up) for impaired glucose metabolism was 3.44 (95% confidence interval [CI], 2.85–4.14) and for type 2 diabetes mellitus was 5.44 (95% CI, 3.68–8.08). Thus, a diagnosis of GDM based on IADPSG criteria at the index pregnancy carried a very strong risk for future metabolic abnormalities.

IADPSG GDM in the mother was also associated with offspring overweight or obesity (39.5% vs 28.6%), with a stronger trend for obesity alone (19.1% vs 9.9%). The combined outcome of offspring overweight and obesity just failed to reach statistical significance after adjustment for field center, pubertal status, and maternal variables at the OGTT visit (age, height, family history of diabetes mellitus, mean arterial pressure, parity, smoking status, alcohol consumption, gestational age, and BMI [OR, 1.21; 95% CI, 1.00–1.46]), but obesity remained significant (OR, 1.58; 95% CI, 1.24–2.01)

The HAPO FUS also published additional analyses that compared long-term outcomes in women and their offspring who were classified post hoc as having GDM by IADPSG or the more stringent Carpenter-Coustan criteria, which commonly is used in the United States.¹⁴ As expected because of the more marked maternal hyperglycemia identified by the Carpenter-Coustan criteria, the frequency of maternal impaired glucose metabolism after GDM was 68.4% and of type 2 diabetes mellitus 20.0% when Carpenter-Coustan criteria were used. Although not presented in the recent publication, the relationships between maternal glycemia during pregnancy and later maternal and child outcomes were continuous, as reported for immediate pregnancy outcomes in earlier publications.

TABLE 1

Perinatal and long-term outcomes in untreated women who were subsequently classified with gestational diabetes mellitus or non-gestational diabetes mellitus by the International Association of Diabetes in Pregnancy Study Groups criteria in the Hyperglycemia and Adverse Pregnancy Outcome study participants and their offspring

| Outcome | International Association of Diabetes in Pregnancy Study Groups participants ^a Gestational diabetes mellitus, % | No gestational diabetes mellitus, % |
|---|---|-------------------------------------|
| Perinatal outcomes from the Hyperglycemia and Adverse Pregnancy Outcome study ⁵⁶ | | |
| Preeclampsia ^b | 9.1 | 4.5 |
| Preterm delivery (<37 weeks gestation) ^b | 9.4 | 6.4 |
| Primary cesarean delivery ^b | 24.4 | 16.8 |
| Shoulder dystocia/birth injury ^c | 1.8 | 1.3 |
| Birthweight >90th percentile ^b | 16.2 | 8.3 |
| Newborn infant body fat >90th percentile ^b | 16.6 | 8.5 |
| Cord C peptide >90th percentile ^b | 17.5 | 6.7 |
| Clinical neonatal hypoglycemia ^b | 2.7 | 1.9 |
| Admission to newborn intensive care unit ^c | 9.1 | 7.8 |
| Long-term outcomes the from Hyperglycemia and Adverse Pregnancy Outcome Follow Up Study ¹³ | | |
| Maternal diabetes mellitus ^b | 10.7 | 1.6 |
| Maternal prediabetes ^b | 41.5 | 18.4 |
| Offspring overweight or obesity ^b | 39.5 | 28.6 |
| Offspring obesity ^b | 19.1 | 9.9 |
| Offspring body fat >85th percentile ^b | 21.7 | 13.9 |

Perinatal outcomes relate to the 23,316 women and their singleton offspring in the blinded Hyperglycemia and Adverse Pregnancy Outcome cohort; long-term outcomes relate to 4697 women and 4832 offspring from the Hyperglycemia and Adverse Pregnancy Outcome follow-up cohort who were examined at a mean of 11.4 years after the birth.

^a Defined as values greater than or equal to the following values on the 75-gram oral glucose tolerance test: fasting, 92 mg/dL; 1 hour, 180 mg/dL; 2 hour, 153 mg/dL; ^b $P < .001$; ^c $P < .01$, comparison of gestational diabetes mellitus and no gestational diabetes mellitus groups.

Hod. *Gestational diabetes mellitus in 2019. Am J Obstet Gynecol* 2019.

GDM frequency and impaired glucose metabolism outside pregnancy

The most frequent concern among those opposed to the IADPSG diagnostic criteria is the marked increase in GDM frequency. In the United States, a 2013 National Institutes of Health panel estimated that GDM frequency would rise from 5–6% with the use of Carpenter-Coustan criteria to 15–20% with the

IADPSG approach.¹⁵ Indeed, in the US-based HAPO field centers, IADPSG GDM frequency ranged from 17.3% in Chicago, IL, to 25.5% in Bellflower, CA.¹⁶ In this context, it is important to note that the US population data from the most recent National Health and Nutrition Examination surveys demonstrate that 4.5% of US adults age 20–44 years have overt diabetes mellitus¹⁷ and a further

29.3% have prediabetes (glycosylated hemoglobin [HbA1c] 5.7–6.4 and/or fasting glucose 100–126 mg/dL and/or 2-hour OGTT glucose 140–199 mg/dL).¹⁸ Even at age 12–19 years, diabetes mellitus affects 0.6% and prediabetes affects 13.2% of women.¹⁹ Thus, if women of reproductive age were tested routinely before pregnancy, >30% would be found to have prediabetes or diabetes mellitus. The fact that many cases of GDM represent preexisting prediabetes or diabetes mellitus has been recognized for many years²⁰ but is not always considered adequately in the discussion of likely GDM prevalence. More recent data from the US-based CARDIA study,²¹ which recruited women before pregnancy (age, 18–30 years) and followed them longitudinally, clearly demonstrate that abnormalities in glucose and lipid metabolism are detectable many years before a GDM diagnosis is made.

Given that pregnancy is a potent “metabolic stressor” because of increased insulin resistance and the need for beta-cell adaptation,^{22–24} why should there be surprise that up to 25% US women might be diagnosed with GDM? Refusal to accept GDM as a very common condition reflects a denial of the facts and a refusal to address the problems posed by concurrent epidemics of diabetes mellitus and obesity that affect women of child-bearing age. Besides the immediate perinatal outcomes, hyperglycemia in pregnancy is a highly reliable marker of future type 2 diabetes mellitus (relative risk, 7.43; 95% CI, 4.79–11.51),²⁵ cardiometabolic disorders (relative risk, 1.66; 95% CI, 1.30–2.13), and renal disease (OR, 2.3; 95% CI, 1.4–3.7).^{26–28} Other pregnancy complications, which include the development of gestational hypertension,²⁹ early term delivery,³⁰ and occurrence of placental complications³¹) may also help to identify future cardiometabolic risks. In women with previous GDM, postpartum lifestyle intervention has been reported to reduce progression to diabetes mellitus by 35%, and metformin has been reported to reduce progression to diabetes mellitus by 40%.³² Breast feeding for >10 months has been reported to decrease

the risk of diabetes mellitus at 2 years after delivery by 57% in women with a history of GDM.³³

The HAPO FUS clearly confirms that pregnancy is a window of opportunity to identify mothers and offspring with substantial future health risks. Given the continuous association between glucose exposure and both immediate pregnancy complications and later cardiometabolic risks, there is no “perfect” set of glucose thresholds, during or after pregnancy, that will identify most women and children who are at risk. Questions both of individual clinical and broader public health risks and benefits, opportunity costs, and health economics must be considered when a decision is being made about diagnostic processes and cutoff values.

Randomized trials for health benefits and health economic benefits

There is clear evidence from the landmark trials by Crowther et al³⁴ and Landon et al³⁵ that GDM treatment improves immediate pregnancy outcomes that are related to excess fetal growth (LGA in both studies, neonatal fat mass also measured in the Landon et al study) and hypertensive disorders of pregnancy by 40–50%. Of note, the sole inclusion criterion for the study by Crowther et al was a 2-hour OGTT result of ≥ 140 mg/dL, which represents less severe hyperglycemia than the IADPSG GDM definition. Direct health economic analysis of the Crowther et al study reported that GDM treatment was highly cost-effective, at \$60,506 Australian dollars per perinatal death prevented and \$2988 Australian dollars per quality adjusted life year gained.³⁶ A US-based analysis that used data from the Landon et al study also suggested an acceptable cost/benefit ratio of \$20,412 (US)/quality adjusted life year gained.³⁷ More indirect “modeling” studies provide more varied results,^{38–40} but all conclude that treatment is highly cost-effective if interventions to reduce future maternal diabetes mellitus risk are included.

One-step vs 2-step testing and 1 vs 2 abnormal values on OGTT

Table 2 provides a comparison of current diagnostic thresholds for GDM. The

2018 guidelines from the ACOG⁴¹ remain highly ambivalent, stating only that “practitioners and institutions should select a single set of diagnostic criteria.” This inconclusive approach tacitly endorses even the largely discredited National Diabetes Data Group thresholds for GDM diagnosis,^{42–44} contrary to current recommendations from the American Diabetes Association.⁴⁵

Although the substantially higher National Diabetes Data Group glucose cutoffs limit the number of GDM diagnoses, they have the capacity to increase overall healthcare costs by virtue of increased maternal and neonatal complications.⁴⁶ ACOG continues to endorse “2-step” testing (glucose 1 hour after nonfasting 50-g glucose load, followed by OGTT if positive) as its preferred option, without clearly stating what glucose result should prompt a full OGTT. We note that this approach systematically does not detect approximately 25% of women with GDM,⁴⁷ delays diagnosis (and thus therapy), and leads to a risk of process errors, in particular failure to follow up on a “positive screen.”^{48,49}

Additionally, we would note that the lower GDM diagnosis rates with Carpenter-Coustan or National Diabetes Data Group criteria are largely due to the requirement that two or more glucose values on the diagnostic OGTT should exceed the designated cutoff values for a confirmed GDM diagnosis. All other dysglycemic states (diabetes mellitus, impaired fasting glucose, impaired glucose tolerance) are diagnosed based on a single abnormal value. Surely, pregnancy is 1 situation in which any degree of dysglycemia with its multigenerational consequences should be taken seriously! The “2 abnormal values” caveat is essentially an historic quirk, empirically proposed post hoc by O’Sullivan and Mahan in 1964 with the cryptic comment, “it was considered expedient,” after their early cohort studies.³

Indeed, in 1961, O’Sullivan⁵⁰ reported GDM diagnoses that generally required 3 abnormal OGTT values. The continued insistence of 2 abnormal values for diagnosis serves to reduce GDM frequency, but not in any logical fashion.^{51–53} It is

almost 30 years since a randomized trial by Langer et al⁵⁴ demonstrated that treatment of women with 1 abnormal value on OGTT improved pregnancy outcomes. Postpartum follow-up studies also clearly demonstrate that even women with a positive glucose screen and a negative OGTT, and certainly women with a single abnormal OGTT value, have worsening β -cell function and dysglycemia within the first year after delivery.⁵⁵

Do we need a new “definitive” randomized controlled trial?

A further argument that has been advanced by critics is that the IADPSG cutoff values have not been used formally in any randomized trial.¹⁵ We acknowledge this issue, but note that the trials by Crowther et al³⁴ and Landon et al³⁵ included women whose OGTT results, age and BMI substantially overlap with women who would be diagnosed under the IADPSG criteria.⁵⁶ Given the known continuous relationship between glucose exposure and risk, it seems most unlikely that a new study that specifically would use the IADPSG cutoff values would deliver a different result. Furthermore, with definite clinical benefits that include the reduction of excess fetal growth and its consequences and a reduction in hypertensive disorders of pregnancy now well-established by systematic review,⁵⁷ any further study would pose ethical issues.

Implementation and pre/post-cohort studies

Issues related to the implementation of the IADPSG GDM diagnostic strategy have been reviewed recently by Brown and Wyckoff,⁵⁸ who note that women diagnosed post hoc as GDM by IADPSG criteria have worse outcomes than those with normal glucose tolerance, “indicating a likely opportunity to improve outcomes with treatment.” Cohort studies conducted on a pre/post basis after a “whole of system” change from 2-step Carpenter-Coustan testing to 1-step IADPSG testing have shown variable results. Duran et al⁵⁹ not only reported a 3-fold increased frequency of GDM diagnoses (from 10.6–35.5%) with this change but also noted that the

TABLE 2

Criteria for gestational diabetes mellitus with the use of thresholds recommended by Carpenter Coustan, National Diabetes Data Group, and International Association of Diabetes in Pregnancy Study Groups

| Criteria | Fasting glucose, mg/dL | 1-Hour glucose, mg/dL | 2-Hour glucose, mg/dL | 3-Hour glucose, mg/dL |
|---|------------------------|-----------------------|-----------------------|-----------------------|
| Carpenter-Coustan ^{14,a} | 95 | 180 | 155 | 140 |
| National Diabetes Data Group ^{41,a} | 105 | 190 | 165 | 145 |
| International Association of Diabetes in Pregnancy Study Group ^{2,b} | 92 | 180 | 153 | Not considered |

Comparison of diagnostic venous plasma glucose cutoff values for gestational diabetes mellitus according to various criteria that use the oral glucose tolerance test.

^a Criteria generally relate to a 100-g oral glucose tolerance test, include an additional glucose measurement at 3 hours after load, and require 2 values at or above the threshold for diagnosis; ^b Criteria relate to a 75-g oral glucose tolerance test and require only 1 value at more than the threshold for diagnosis.

Hod. Gestational diabetes mellitus in 2019. Am J Obstet Gynecol 2019.

increased costs of treatment were more than offset by a reduction in peripartum costs, which principally were related to reduced rates of cesarean delivery and newborn intensive care unit admission. Of note, the percentage of women who required insulin therapy under the IADPSG criteria was constant at approximately 20%, which suggests that the change in approach did not result in the detection of trivial or clinically insignificant hyperglycemia in pregnancy.

By contrast, a US-based cohort study from Kaiser Permanente California,⁶⁰ also evaluating a change from Carpenter-Coustan testing to IADPSG testing, reported an increase in GDM from 17–27% without any change in pregnancy outcomes. However, in addition to the change in standard GDM screening, this group also introduced early HbA1c testing into routine clinical practice. The majority of the increase in GDM prevalence appeared because of early HbA1c testing, with a consequent increase in what they termed *prediabetes* from 4–11%. This clearly suggests a high rate of prepregnancy impaired glucose metabolism in their population. Such women are known to be at higher risk and may benefit less from routine treatment.⁶¹ Further, clinical practice in this center clearly changed over the course of the study, with glyburide

replacing insulin as the predominant mode of pharmacotherapy, which may also have contributed to worsening of outcomes.^{62,63} A more recent report from Kaiser Permanente Washington State⁶⁴ also reported an increase in GDM from 6.9–11.4% after a similar change in diagnostic protocol, without improved overall pregnancy outcomes. Of note, their “post IADPSG” rate of GDM diagnosis was still substantially lower than any US-based center in the HAPO study,¹⁶ which suggests a population at low overall risk. Again, this study introduced early HbA1c testing at the same time but failed to document the rate of abnormal early testing separately.

Saccone et al⁶⁵ recently have published a systematic review of all randomized studies comparing the 2-step and 1-step approaches. They conclude that overall perinatal outcomes are improved with the IADPSG approach, with evidence for reduction in LGA, neonatal intensive care unit admission, and neonatal hypoglycemia.

Maternal GDM treatment, breast feeding, and offspring risks

Offspring exposed to maternal hyperglycemia in pregnancy, independent of maternal obesity, are at a significantly heightened risk of early onset obesity, type 2 diabetes mellitus, and

cardiometabolic disorders as a consequence of intrauterine developmental programming.^{13,66,67} A report from Germany that included adjustment for maternal BMI and other potential confounders comparing GDM and nonGDM offspring yielded an OR of 1.81 (95% CI, 1.23–2.65) for childhood overweight and 2.80 (95% CI, 1.58–4.99) for childhood obesity, respectively. Similar results were obtained for the risk of childhood abdominal adiposity (OR, 1.64; 95% CI, 1.16–2.33) by maternal GDM. A study from Israel has also reported an association between diet-treated GDM and offspring cardiovascular morbidity (relative risk, 1.6; 95% CI, 1.2–2.2).⁶⁸ The effects of maternal GDM treatment on offspring risk of obesity and impaired glucose metabolism are much less clear. Follow up from the randomized trials by Gillman et al⁶⁹ and Landon et al⁷⁰ has failed to demonstrate any clear overall benefit of maternal GDM treatment for the offspring, although the Landon et al study suggested some possible improvement in metabolic status for girls whose mothers were treated for GDM. Recent US-based evidence from Gunderson et al shows that breast feeding can attenuate some of these risks, with weight for length Z score reduced by 0.36–0.45 standard deviation units at 12 months of age in GDM offspring who were intensively breast fed⁵³; however, definitive evidence of longer term benefit is lacking.

GDM as a global health issue

Thus far, our commentary has focused primarily on GDM as it affects US-based clinical practice. However, the issues are even more pressing on a global scale.^{71,72} Hyperglycemia in pregnancy is estimated to have affected 21.4 million live births in 2013, with >90% of cases occurring in low–middle income countries that lack sufficient resources to provide optimal care.⁷¹ Moreover, in populous low and middle income countries (South Asia [37 million] and China [18 million] pregnancies annually) with limited resources, the recommendation for a 2-step approach for diagnosis is impractical and will result in only a small fraction of the target population being tested.

The FIGO has addressed this pressing health issue by producing and promoting pragmatic worldwide guidelines for diagnosis and treatment of hyperglycemia in pregnancy.⁸ In collaboration with the International Diabetes Federation, FIGO has produced firm declarations regarding the importance of hyperglycemia in pregnancy.^{73,74} This is the first time that such a broad global consensus has been achieved. These declarations have been endorsed by governments in many areas of the world. A global consensus document was signed at the FIGO 2018 World Congress. FIGO has also formed a “Pregnancy and prevention of early noncommunicable disease” subcommittee to address effectively the prevention of noncommunicable diseases by highlighting the importance of maternal nutrition, obesity, hyperglycemia, hypertension, and preterm delivery as major antecedents to and markers of later noncommunicable disease risk.⁷⁵

In conclusion, we consider that the HAPO FUS has provided important evidence to demonstrate that identification of hyperglycemia in pregnancy may identify a large number of women who may benefit from interdisciplinary medical intervention in pregnancy and postpartum follow up. Without appropriate diagnostic strategies and careful follow up, this opportunity will be lost, and the current epidemics of obesity and diabetes mellitus will continue unchecked.

What is needed now is not further contemplation but rather action that is impeded in the United States by denial of what we consider compelling evidence that IADPSG GDM, although it is somewhat less severe than the hyperglycemia identified by older criteria, merits detection and treatment. We strongly urge our US-based colleagues, both individually and through major groups such as ACOG and the Society for Maternal–Fetal Medicine, to realistically address the challenges posed by hyperglycemia in pregnancy, to promote women’s health by taking a “whole of life” approach to this and other maternal risk factors, and energetically to support efforts to reduce the personal, economic, and societal harms caused by this global epidemic. ■

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